

## The Complex of *Trechiana kosugei* (Coleoptera, Trechinae) from Hyôgo Prefecture, West Japan

(I) A Remarkable New Species from the Western Periphery of its Distributional Range

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**Abstract** A remarkable new species belonging to the *kosugei* complex in the group of *Trechiana oni* is described from the central part of Hyôgo Prefecture, West Japan, under the name *T. (s. str.) ikunoensis* ASHIDA, sp. nov. Several new records of *T. (s. str.) obliquus* S. UENO are also reported from the same area.

Two trechine groups called the *fujitai* complex and the *kosugei* complex, both of which belong to the species-group of *Trechiana oni*, are allopatrically distributed in the northern part of the Kinki District. The border between the distributional ranges of these two complexes lies on the Ichi-kawa/Maruyama-gawa line (UENO, 1985 a; ASHIDA, 2003, 2005 a). The former occurs in the west of this line and the latter in the east. Exceptionally, two peculiar species of the former complex invaded into the eastern hills of the upstream of the Maruyama-gawa River (ASHIDA, 2003, 2005 b). From this area, no species belonging to the *kosugei* complex has so far been reported. In this paper, I am going to describe a remarkable new species found in this area, which is the ninth member of the *kosugei* complex. In addition, I will provide several new records of *T. obliquus* S. UENO, which is also an isolated species in the same complex.

The abbreviations used herein are as follows: HW – greatest width of head; PW – greatest width of pronotum; PL – length of pronotum, measured along the midline; PA – width of pronotal apex; PB – width of pronotal base; EW – greatest width of elytra; EL – greatest length of elytra; M – arithmetic mean. Measurement was made using six male and six female specimens.

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*Trechiana* (s. str.) *ikunoensis* ASHIDA, sp. nov.

(Figs. 1–5)

Length: 5.50–6.05 mm (from apical margin of clypeus to apices of elytra).

Belonging to the *kosugei* complex of the group of *Trechiana oni* and externally very similar to *T. yoshiakii* S. UENO (1978, p. 298, figs. 5–8; 1985, pp. 167, 188), though clearly different from all the known members of this complex by the configuration of the male genitalia.

Color dark reddish brown with light-colored appendages. Head as in *T. yoshiakii*; remnant of eyes small but distinct; antennae more or less stouter. Pronotum similar to that of *T. yoshiakii*, wider than length, widest at about two-thirds from base, moderately convex on dorsum, and depressed at basal part; frontal margin very slightly emarginate with obtuse front angles; sides equally contracted in front and behind, sinuate at basal fourth, and more or less divergent towards hind angles, which are sharp and protrude postero-laterad; postangular setae present; basal margin slightly emarginate at

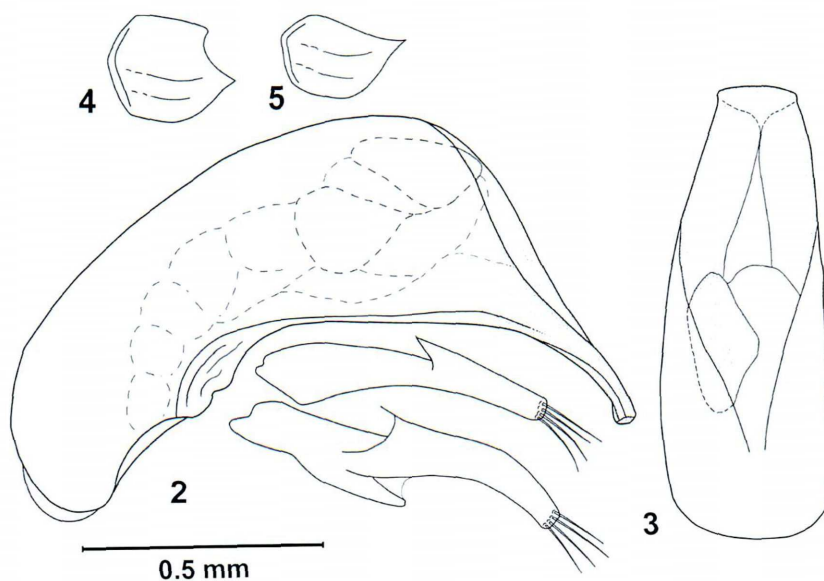


Fig. 1. *Trechiana* (s. str.) *ikunoensis* ASHIDA, from Kami-ikuno, ♂, dorsal view.

middle; PW/HW 1.37–1.47 (M 1.42), PW/PL 1.11–1.17 (M 1.13), PW/PA 1.39–1.49 (M 1.45), PW/PB 1.40–1.46 (M 1.43), PB/PA 0.97–1.06 (M 1.01). Elytra also similar to those of *T. yoshiakii*, though the prehumeral borders are more oblique and the shoulders effaced; EW/PW 1.59–1.68 (M 1.63); EL/PL 2.74–2.97 (M 2.83); EL/EW 1.50–1.59 (M 1.53); striae distinctly impressed as in *T. yoshiakii*; setiferous dorsal pores on stria 5 located at 1/6–1/5 and 1/2–3/5 from base, respectively. Legs as in *T. yoshiakii*.

Male genital organ robust and heavily sclerotized. Aedeagus about two-fifths as long as elytra, moderately arcuate, ample at basal and middle parts, and gradually tapered towards apical orifice, which is nearly symmetrical; basal orifice rather small, whose sides are weakly emarginate; sagittal aileron small and narrow; viewed laterally, middle part convex on dorsum, then abruptly narrowed towards apical tip, which is slightly curved ventrad and truncated at extremity; viewed dorsally, apical lobe broad, subtrapezoidal, and gradually narrowed towards subtruncated apex, which is minutely hooked at both corners; viewed ventrally, median part of apical lobe longitudinally concave, the groove becoming narrower towards apex. Inner sac armed with a teeth-patch and a copulatory piece; teeth-patch large, triangular, covered with minute teeth, lying at the right side of apical orifice; copulatory piece moderately sclerotized, one-fifth as long as aedeagus, lying below the teeth-patch, lamellar, weakly rolled ventrad, subpentagonal, with the apical corner projected. Styles fairly long and slender, left one being longer than the right, each provided with four setae at apex.

*Type series.* Holotype: ♂, 21–IV–2001, A. SOUMA leg. Paratypes: 4♂♂, 3♀♀,



Figs. 2–5. Male genitalia of *Trechiana* (s. str.) *ikunoensis* ASHIDA: aedeagus, left lateral view (2); apical part of aedeagus, dorso-apical view (3); separated copulatory piece, dorsal (4) and left lateral (5) views.



21–IV–2001, A. SOUMA leg.; 5♂♂, 7♀♀, 4–V–2001, A. SOUMA, S. TANAKA, K. KITAYAMA, Y. OKUDA, K. ITÔ & S. YAMASHITA leg.; 1♀, 26–V–2001, M. MORI leg.; 1♀, 3–VI–2001, M. MORI leg.; 1♂, 2–V–2002, To. SAITÔ leg.; 12♂♂, 9♀♀, 5–V–2002, Y. OKUDA, S. NAKAMURA, S. YAMASHITA & H. ASHIDA leg.; 4♂♂, 3♀♀, 18–VIII–2003, Y. OKUDA leg.; 4♂♂, 1♀, 4–VII–2004, H. ASHIDA leg. The holotype and one female paratype are deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo.

*Type locality.* Kami-ikuno (400–450 m in altitude), north of the Ginzanko Reservoir, Ikuno-chô, Asago-shi, Hyôgo Prefecture, West Japan.

*Further records.* 2♂♂, 3♀♀, Onaza (250–320 m in altitude), northern to northeastern slope of Mt. Mikunidake (855 m in height), Aogaki-chô, Tamba-shi, Hyôgo Prefecture, 10–V–2003, K. KITAYAMA & H. ASHIDA leg.; 10♂♂, 2♀♀, same locality, 2–VIII–2003, Ta. SAITÔ & Y. OKUDA leg.; 5♂♂, 2♀♀, same locality, 4–VII–2004, H. ASHIDA leg.; 2♂♂, Otogatawa (280–310 m in altitude), Nishitani, southern slope of Mt. Sasagamine (827 m in height), San'nan-chô, Tamba-shi, Hyôgo Prefecture, 2–VIII–2003, Y. OKUDA & Ta. SAITÔ leg.; 2♂♂, 1♀, same locality, 26–X–2003, Y. OKUDA & H. ASHIDA leg.

*Etymology.* This new species is named after the type locality, Ikuno-chô.

*Notes.* The *kosugei* complex is characterized by possessing a relatively small aedeagus with asymmetrically reduced lateral walls and a small copulatory piece inside the inner sac. Among the members, the present new species is rather isolated judged from unique configuration of male genitalia, which is thickset with less strongly reduced lateral walls, devoid of the proximal teeth-patch, and provided with a larger copulatory piece. The distributional range of this species is relatively broad, namely, it is so far found from three localities: Kami-ikuno (type locality), Onaza, and Nishitani. The second and third localities are 8 km distant to the northeast and 14 km to the southeast, respectively, from the type locality. Surprisingly, these three localities lie in quite different river systems. In the north and northeast of the type locality, two sibling species of the *fujitai* complex, *T. latilobatus* and *T. asagonis*, occur, which have a depressed aedeagus with wide and flat apical lobe and a very small copulatory piece (ASHIDA, 2003, 2005 b). The male genitalia of these neighboring species belonging to different complexes seem to be evolved to opposite directions to prevent inter-complex hybridization. It is worth noting that a single specimen of *T. latilobatus* was obtained from a gully in Kami-ikuno (ASHIDA, 2003). The interaction between these two complexes might accelerate speciation and differentiation.

In all known localities, *T. ikunoensis* was dug out from soil deposited along streams in shaded gullies as in the other members of the same complex.

### *Trechiamma* (s. str.) *obliquus* UENO, 1985

*Trechiamma* (s. str.) *obliquus* UENO, 1985, J. speleol. Soc. Japan, **10**, p. 5, figs. 5–8; type locality: Minami-yama at Ôhata, Kanzaki-chô.

*Additional records.* 8♂♂, 3♀♀, Ôhata (type locality), Kanzaki-chô, Hyôgo Prefecture, 5-X-1997, H. ASHIDA leg.; 2♂♂, Shirakuchi, Ikuno-chô, Asago-shi, Hyôgo Prefecture, 8-X-2000, A. SOUMA leg.; 6♂♂, 4♀♀, Mt. Awaga-yama, Aogaki-chô, Tamba-shi, Hyôgo Prefecture, 10-VI-2001, A. SOUMA leg.; 1♂, 2♀♀, same locality, 13-VIII-2001, M. MORI leg.; 6♂♂, 7♀♀, same locality, 23-IX-2002, Y. OKUDA, S. YAMASHITA & H. ASHIDA leg.; 10♂♂, 8♀♀, same locality, 2-VIII-2003, H. ASHIDA leg.

*Notes.* *Trechiana obliquus* is another isolated species in the *kosugei* complex. Ôhata, the type locality of this species, is 7 km distant to the south-southeast from Kami-ikuno, that of the preceding species. The second locality, Shirakuchi, is 4 km distant to the northwest from Ôhata, and 3.5 km to the south from Kami-ikuno. The third locality, Mt. Awaga-yama, is rather apart from its type locality, namely 18 km distant to the north-northeast from Ôhata. On Mt. Awaga-yama, *T. obliquus* coexists with *T. asagonis*, but the former is more dominant and is found from shallower part of soil deposits (ASHIDA, 2005 b). The distributional range of this species is wide on the eastern hills of the Ichi-kawa / Maruyama-gawa line and overlaps that of *T. ikunoensis*. However, these two species belonging to the same complex are never found from the same locality.

## 要 約

芦田 久：兵庫県のコスゲメクラチビゴミムシ系。（第I報）分布域西端より見いだされた顕著な1新種。—— オニメクラチビゴミムシ群のコスゲメクラチビゴミムシ系とフジタメクラチビゴミムシ系は、おもに近畿地方の北部に分布し、兵庫県を流れる市川と円山川を結ぶラインを隔てて、それぞれ東西に棲み分けている。ところが、例外的に後者に属する特異な2種が円山川上流部の東側に侵入している。この地域からはコスゲメクラチビゴミムシ系の記録はこれまでなかったが、本論文において顕著な1新種イクノメクラチビゴミムシ *Trechiana* (s. str.) *ikunoensis* ASHIDA, sp. nov. を記載した。基準産地は兵庫県朝来市生野町上生野で、丹波市青垣町大名草と丹波市山南町西谷から見いだされた個体群も同種と判断した。また、*T.* (s. str.) *obliquus* S. UENOの追加記録を兵庫県神崎町大畑（基準産地）、朝来市生野町白口、丹波市青垣町粟山から報告した。

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*Onthophagus* (*Onthophagus*) *kashizakii*, a New Replacement Name for  
*O. (O.) borneomontanus* OCHI et KON  
(Coleoptera, Scarabaeidae)

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OCHI and KON (2005) described *Onthophagus* (*Onthophagus*) *borneomontanus* from Borneo. However, the specific name *borneomontanus* is preoccupied by the subspecies of *O. (Macronthophagus) uenoi*, *O. (M.) uenoi borneomontanus* OCHI, 2003. Thus, we propose the new name, *O. (O.) kashizakii*, in substitution to *O. (O.) borneomontanus* OCHI et KON, 2005.

***Onthophagus* (*Onthophagus*) *kashizakii* OCHI et KON, nom. nov.**

*Onthophagus* (*Onthophagus*) *borneomontanus* OCHI et KON, 2005, Kogane, Tokyo, **6**, p. 59 [nec *Onthophagus* (*Macronthophagus*) *uenoi borneomontanus* OCHI, 2003, G. it. Ent., **10**, p. 282].

*Etymology.* The present new name is dedicated to Mr. Akira KASHIZAKI who has been studying the beetle fauna of Sabah.

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